

In the claims:

1-70 (cancelled)

71. (new) A method of inhibiting growth of leukemia cells comprising administering a therapeutically effective amount of a leukemia therapeutic agent conjugated to a monoclonal antibody or fragment thereof, wherein the monoclonal antibody or fragment thereof binds to OCIM1 cells and blocks the binding of human stem cell factor to OCIM1 cells.

72. (new) A method of inhibiting growth of solid tumors comprising administering a therapeutically effective amount of a solid tumor therapeutic agent conjugated to a monoclonal antibody or fragment thereof, wherein the monoclonal antibody or fragment thereof binds to OCIM1 cells and blocks the binding of human stem cell factor to OCIM1 cells.

73. (new) The method of Claims 71 or 72 wherein the monoclonal antibody is produced by immunization with a cell line that displays human stem cell factor receptor on its surface.

74. (new) The method of Claims 71 or 72 wherein the monoclonal antibody competes with the monoclonal antibody produced from the hybridoma cell line ATCC No. HB 10716 for binding to OCIM1 cells.

75. (new) The method of Claim 71 or 72 wherein the monoclonal antibody is produced from the hybridoma cell line ATCC No. HB10716.

76. (new) The method of Claims 71 or 72 wherein the monoclonal antibody or fragment thereof blocks binding of human stem cell factor to OCIM1 cells by at least 50%.

77. (new) The method of Claims 71 or 72 wherein the monoclonal antibody or fragment thereof blocks binding of human stem cell factor to OCIM1 cells by at least 75%.

78. (new) The method of Claims 71 or 72 wherein the monoclonal antibody or fragment thereof blocks binding of human stem cell factor to OCIM1 cells by at least 90%.

79. (new) The method of Claims 71 or 72 wherein the monoclonal antibody or fragment thereof decreases the growth rate of early erythroid colony forming cells (BFU-E) by at least one half.

80. (new) The method of Claims 71 or 72 wherein the monoclonal antibody or fragment thereof decreases the growth rate of erythroid colony forming cells (BFU-E) by at least one tenth.

81. (new) The method of Claims 71 or 72 wherein the monoclonal antibody or fragment thereof decreases the growth rate of erythroid colony forming cells (BFU-E) by at least one hundredth.

82. (new) The method of Claims 71 or 72 wherein the monoclonal antibody or fragment thereof comprises a murine variable region and a human constant region.

83. (new) The method of Claims 71 or 72 wherein the monoclonal antibody or fragment thereof comprises a murine hypervariable region and a human constant and framework region

84. (new) The method of Claims 71 or 72 wherein the monoclonal antibody or fragment thereof comprises a human monoclonal antibody.

85. (new) The method of Claims 71 or 72 wherein the monoclonal antibody or fragment thereof comprises a pharmaceutical composition containing the antibody.

86. (new) The method of Claims 71 or 72 wherein the composition comprises one or more of a buffer, diluent and additive.

87. (new) The method of Claims 71 or 72 wherein the leukemia therapeutic agent or solid tumor therapeutic agent is selected from one or more of a radioisotope, a toxin, an antitumor drug, an antibiotic, and a cytostatic drug.

88. (new) The method of Claim 87 wherein the radioisotope is selected from one or more of ^{32}P , ^{131}I , ^{90}Y , ^{186}Re , ^{212}Pb and ^{212}Bi .

89. (new) The method of Claim 87 wherein the toxin is a protein of glycoprotein toxin.

90. (new) The method of Claim 87 wherein the toxin is selected from one or more of diphtheria toxin, shigella toxin, pseudomonas exotoxin, ricin, abrin, modeccin, viscumin, pokeweed antiviral protein, saporin, momordin and gelonin.

91. (new) The method of Claim 87 wherein the antitumor drug is selected from one or more daunomycin, adriamycin, aclacinomycin, eseperamycin, calicheamycin, and neocarzinostatin.

92. (new) The method of Claim 87 wherein the cytostatic drug is selected from one or more of cis-platinum, vinblastine and methotrexate.